

Electron Configuration

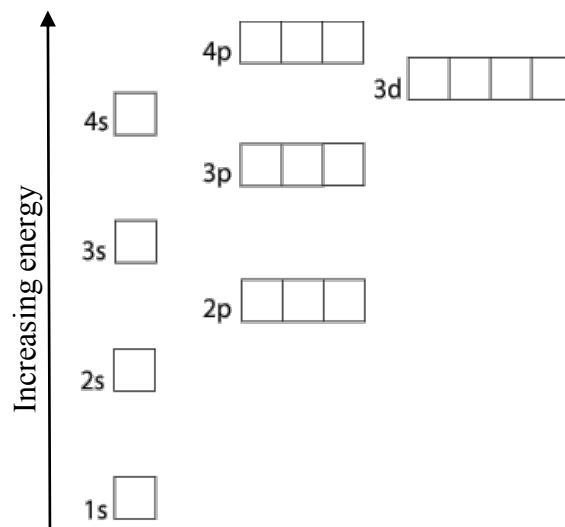
Quantum Numbers:

Name	Symbol	Possible values	Defines
Principal Quantum Number	n	1 to infinity	Energy level and size of orbital
Azimuthal Quantum Number	l	0 to $(n-1)$	Shape of orbital
Magnetic Quantum Number	m_l	$-l$ to l	Orientation
Spin Quantum Number	m_s	$+1/2, -1/2$	Electron spin

Electron Configuration

- The _____ of electrons in the orbitals.
- For example, consider the hydrogen electron:
 - It is most likely to be found in the _____ orbital.
 - Its ground-state electron configuration would be: _____.
- We can accompany an electron configuration for an atom with an _____.
 - Each orbital in any given principal energy level is represented as a _____.
 - Each _____ can contain either 0, 1, or 2 electrons, which we represent by an arrow.
 - Arrow pointing _____ to represent an electron with a spin of $+1/2$.
 - Arrow pointing _____ to represent an electron with a spin of $-1/2$.
 - For example, the orbital diagram that would accompany the ground-state configuration of the hydrogen atom in the previous example would be:
- The orbital diagram of helium that would accompany its ground-state electron configuration of _____ would be:

- Condensed electron configuration and orbital diagrams
 - Used to reduce the length of the electron configuration.
 - Use the atomic symbol of the _____ gas from the previous period in brackets, which will represent that gas' electron configuration.
 - For example, the electron configuration of a sodium atom is $1s^2 2s^2 2p^6 3s^2$.
 - The noble gas from the previous period is neon (Ne) with electron configuration $1s^2 2s^2 2p^6$.
 - The condensed electron configuration for a sodium atom is: _____.
 - When drawing the orbital diagram of a condensed electron configuration, it is enough to only represent the orbital diagrams for the _____ electrons.
- When writing electron configurations and orbital diagrams, it is important that we follow the following principles and rule:
 - Aufbau principal:
 - Electrons will always fill the _____ available energy level.
 - The diagram below can be useful in identifying the lowest available energy level (however, *there are exceptions!*)
 - Chromium:



➤ Copper

➤ Takeaways from exceptions:

